

Remark. This species is allied, on the one hand, to the large *Ptilotis chrysotis*, and, on the other, to the small *P. gracilis*; its most remarkable feature, when compared with those birds, is its long and stout bill, which is both longer and stouter than that of the former species; in all its other admeasurements it is considerably smaller, while they much exceed those of the *P. gracilis*. It is also closely allied to, but quite distinct from, the *P. similis* of the Aru Islands. Gilbert collected this bird at Brown's Lagoon, on the 20th of December, 1844, when travelling with Leichardt from Moreton Bay to Port Essington; and I have lately received specimens through Mr. Jardine from the Cape-York district of Queensland.

XXXV.—*Synopsis of the Asiatic Squirrels (Sciuridæ) in the Collection of the British Museum, describing one new Genus and some new Species.* By Dr. J. E. GRAY, F.R.S., V.P.Z.S., &c.

THE Squirrels form a very natural group. The species are very difficult to distinguish, on account of the general similarity that exists between them, and the variation that the specimens of the same kind present. The species appear to have a comparatively limited range, and therefore are most easily divided into geographical series.

The North-American species have been well studied and described by Dr. Spencer Baird, in his work on the North-American Mammalia.

The species of Asia and, especially, of South and Tropical America are very imperfectly known.

I have been studying the Asiatic specimens in the British Museum, many of which are the types of the species described by Horsfield, Hodgson, Blyth, Kelaart, Sykes, Elliot, Solomon Müller, and myself; and I have attempted to arrange them into groups, so as to bring together the species most nearly allied, and to enable the student easily to distinguish them. A synopsis of the species of Africa and America will follow. In these synopses I have confined myself to the study of specimens in the Museum Collection, which have been most carefully compared together.

The section *Sciurinae* of *Sciuridæ* is separated from the *Arctomyinae* by the small size of the upper front molar, or by its absence (for it is often early deciduous), and by the broad rounded form of the inner edge of the grinders. It may be thus divided:—

I. *Without any cheek-pouches. Fur soft, consisting of fusiform hairs and a soft under-fur. Ears ovate. Arboreal. Tree-Squirrels.*

A. *The limbs free, without any parachute.*

i. *The front edge of the cutting-teeth broad, rounded, closely longitudinally grooved.*

1. RHEITHROSCIURUS. Ears large, long, pencilled; head large, short; tail broad, clavate.

ii. *The front edge of the cutting-teeth narrow, compressed, smooth.*

2. SCIURUS. Ears ovate, pencilled or tufted externally; nose rounded; tail longer than the body.

3. MACROXUS. Ears ovate, covered with short adpressed hairs; nose short, blunt; cheek-pouch none; tail longer than the body.

4. RHINOSCIURUS. Ears ovate, covered with short adpressed hairs; nose acute, produced; cheek-pouch none; tail longer than the body.

B. *The limbs enclosed in skin, forming a parachute; tail short, broad, pennate; front edge of cutting-teeth smooth.*

5. SCIUROPTERUS. Ears ovate, covered with short adpressed hairs. Europe, Asia, and America.

II. *Without any cheek-pouches. Fur short, rigid, with flat channelled spines, without any under-fur. Ears rounded, scarcely raised. Terrestrial. Ground-Squirrels.*

6. XERUS. Ears narrow, short, mostly raised above the head; face short, blunt; cheek-pouches none; fur short, rigid. Africa.

III. *With distinct cheek-pouches. Fur soft, consisting of fusiform hairs and a soft under-fur. Ears ovate. Fossorial. Burrowing Squirrels.*

7. TAMIAS. Ears ovate, covered with short adpressed hairs; face short, rounded; cheek-pouches distinct. Europe, North Asia, and America.

I. *Without any cheek-pouches. Fur soft, consisting of fusiform hairs and a soft under-fur. Ears ovate. Arboreal. Tree-Squirrels.*

A. *The limbs free, without any parachute.*

i. *The front edge of the cutting-teeth broad, rounded, closely longitudinally grooved.*

1. RHEITHROSCIURUS, nov. gen.

Head large, compressed, short; ears large, with a pencil of elongated hairs at the tip; cutting-teeth broad, rounded in front

and closely longitudinally grooved. The limbs free; feet large, strong. Tail as long as the body and head, very thick, clavate, covered with long flaccid hairs.

The grooving of the teeth is a peculiarity not observed in any other Sciuridæ.

Rheithrosciurus macrotis.

Sciurus macrotis, Gray, P. Z. S. 1856, p. 341, t. 46.

Brown, very minutely punctulated; throat and beneath white; lateral streaks broad, yellowish; front of thighs bay. Tail blackish, whitish-washed.

Hab. Sarawak (Wallace). Type in B.M.

11. *The front edge of the cutting-teeth narrow, compressed, smooth.*

2. SCIURUS.

Head moderate, short, rounded; ears ovate, covered externally with elongated hairs forming a tuft or pencil; front edge of the cutting-teeth narrow, compressed, smooth. Limbs free. Tail as long as or longer than the body, covered with long hair spreading on the sides.

I. *The ears with a tuft of elongated rigid hairs forming a transverse pencil.* No. 1.

II. *The ears with rather rigid hairs forming a fringe and slight pencil.* Nos. 2-4.

III. *The ears with a puff or tuft of soft hairs on the outer surface.* Nos. 5-9.

I. *Ears with a tuft of long hairs forming a pencil; tail broad, as long as the body; medium-sized.*

1. *Sciurus calotus.*

Mustela? calotus, or *Chuakhal*, Hodgson, Calcutta J. N. H. ii. 221, t. 9.

Mustela calotis, Hodgson.

Sciurus europæus, var. Gray, List. Hodgs. Coll. 23.

Fur very soft, black-grey, beneath white; tuft of ears and tail darker.

Hab. North China, Thibet (Mr. Hodgson's type), Siberia. B.M.

This may be the same as the Grey Squirrel of Northern Europe; but it is smaller and the fur softer than any *S. vulgaris* I have seen.

II. *The ears covered externally with elongated hairs forming a fringe and slight pencil; medium-sized.*

2. *Sciurus leucomus*, Sol. Müller, Verh. N. B. 10.

Dark grey, grizzled with black and white; beneath reddish grey, white half collar on the back of the neck. Tail as long

as the body, hairs with two or three broad black and yellow rings; end of the nose yellowish.

Hab. Celebes. B.M.

3. *Sciurus leucocephalus*.

Dark blackish grey, varied with white tips to the hairs; head, ears, throat, underside of body, outer and inner sides of limbs, and underside of the tail white or yellowish white. Tail as long as the body and head, with black, largely white-tipped hairs; ears fringed with elongate hairs.

Hab. Asia? B.M. (a male).

See also *Sciurus erythræus*, Pallas, not Swinhoe, which is a *Macroxus*.

4. *Sciurus historicus*.

Sciurus syriacus, Verreaux, Cat., not Ehrenb.

Fur elongate, soft, full, blackish grey, closely and minutely punctulated with white; head, neck, and shoulders with a reddish tint; chin, throat, underside of the body, fore legs, and fore feet rufous. Tail as long as the body, blackish, reddish-grey-varied, with broad reddish edges and tip, hairs rufous, with a broad subterminal black band and reddish tip; ears with longish rigid hairs, forming a fringe and slight pencil.

Hab. Syria (Verreaux). B.M.

Differs from *Sciurus syriacus* of Ehrenberg and Tristram in the pencilled ears, the darkness and length of the fur, the dark colour of the shoulders, and the red being confined to the sides of the belly and not extending up the sides of the body.

III. *Ears with a puff of soft hairs on the outer surface.*

* Tail elongate, longer than the body and head; large-sized. Ratufa.

5. *Sciurus indicus*.

Sciurus maximus, Schreb. Säugeth. t. 217; Horsf. Zool. Java, t. = *Great Squirrel*, Shaw.

Sc. indicus, Erxl., 1777.

Sc. bombayus, Bodd. = *Bombay Squirrel*, Penn., 1785.

Sc. purpureus, Zimm.

Fur red brown; thighs, loins, rump, and tail black; cheeks and occipital band fulvous.

Hab. India, Malabar. B.M.

Var. *Elphinstonii*.

Sc. Elphinstonii, Sykes, P. Z. S. 1831, p. 103.

Hab. Dukhun (Sykes). B.M.

Varies greatly in the intensity of the colour.

** *Tail moderate, as long as the body and head; fur grizzled; middle-sized.*

6. *Sciurus lokrioides*.

Sciurus lokrioides, Hodgson, J. A. S. B. 1836, p. 223; Horsf. P. Z. S. 1839, p. 152.

Sciurus assamensis, McClelland, MS.; Gray, List Mamm. B. M. p. 143 (1842).

Fur pale grey, closely and minutely punctulated with yellow; chin, throat and beneath pale grey; front of thighs like back. Tail coloured like back, upper end with indistinct annulations, tip blackish; hairs pale, with three black bands and a pale tip.

Hab. India, Assam (Gray): type in B.M. Darjeeling (Hodgson): type in B.M.

The hair of the ears soft.

7. *Sciurus modestus*.

S. modestus, S. Müller, Verh. Mam. t. 14.

Blackish olive, very closely and minutely punctulated with yellow; head and sides of neck rather more rufous; chin, throat, belly, and inside of limbs pale reddish. Tail black and yellow, punctulated, obscurely ringed; hairs yellow, with broad black subterminal ring, and with a well-marked yellow tip.

Hab. Sumatra (Müller's type in B.M.).

*** *Tail moderate, as long as the body and head; face with a longitudinal streak; small-sized.*

8. *Sciurus Macclellandii*, Gray, P. Z. S. 1839, p. 152.

Sciurus trilineatus, Gray, B.M. 1828 (not Waterhouse).

Sciurus Barleei, Blyth, J. A. S. B. xvi. 878, t. 36. f. 3 (1847).

Fur soft, yellowish grey, with a black vertebral streak; orbit, streak from end of nose, under the eye and ear, along the side of the back, yellowish; a small tuft of soft hair behind the ear white; chin and underside of body pale reddish grey.

Hab. Bhotan: type in B.M. Nepal (Hodgson, n. 33): B.M. Formosa (Swinhoe): B.M.

9. *Sciurus melanotis*.

Sciurus melanotis, S. Müller, Verh. t. 15. f. 4, 5, 6.

S. nanus, Wallace, B.M.

S. soricinus, Waterh. Cat. Zool. Soc. Mus. Suppl. ed. 2. no. 448.

Fur pale grey, soft; chin, middle of throat, chest, belly, and inside of limbs reddish; streak from nose, under the eye to side of neck pale reddish, edged above with black; ears covered with soft black hairs. Tail dark grey, washed with whitish; hairs yellow, with a broad subterminal band and white tip. A very small species.

Hab. Borneo (Müller's type in B.M.). Sarawak (Wallace's type in B.M.) New Guinea: B.M.

3. MACROXUS.

Head moderate, short; nose rounded; ears ovate, covered with short adpressed hairs; front edge of the cutting-teeth compressed, smooth. Limbs free. Tail as long as or longer than the body and head, covered with long spreading hair.

M. F. Cuvier, in the 'Dents de Mammifères' and in his paper on the skulls of Sciuridæ in the Memoirs of the Museum, proposed a genus under the name of *Macroxus* for *Sciurus vittatus* of Asia and *Sciurus æstuans* of Tropical America. It is very indistinctly characterized; and Lesson has referred to the genus sundry species having little relation to each other. As it is desirable to separate the squirrels with simple ears, I have adopted the name, and defined it as above. It is a natural group, containing many Asiatic, African, and American species.

The Asiatic *Macroxi* may be thus divided:—

- I. *Large size. Tail much longer than the body and head.* Nos. 1–3.
- II. *Medium size. Back with black longitudinal stripes.* No. 4.
- III. *Medium size. Sides of the body with a black longitudinal streak.* No. 5.
- IV. *Medium size. Sides of the body with a pale or white longitudinal streak.* Nos. 6–13.
- V. *Medium size. Sides of the back with two pale streaks; lower broad, diffuse.* No. 14.
- VI. *Small size. Back with three or five white or pale longitudinal stripes.* Nos. 15–18.
- VII. *Medium or small size. Back grizzled, without either dorsal or lateral stripes.* Nos. 19–38.

I. *Large size. Tail much longer than body and head.* Rukaia.

1. *Macroxus macrourus*.

Sciurus zeylanicus, Rai. Syn. Quad. 265.

S. macrourus, Forster in Pennant, Ind. Zool. t. 1.

S. macrurus, Fischer.

S. ceylonensis, Bodd.

?*S. madagascariensis*, Shaw, Fischer.

Fur harsh; black, more or less grizzled with white; face, fore and hind legs, and spots on nape white; tail sometimes apparently imperfectly annulated.

Hab. Ceylon. B.M.

Var. End of tail white. *Sciurus macrourus*, Blyth, J. A. S. B. xvi. t. 36. f. 2. Ceylon.

Var. larger? *Sciurus Tennantii*, Kelaart, J. A. S. B. xviii. 600; Blyth, J. A. S. B. xvi. 13 (1851).

Hab. Ceylon, in the mountains.

2. *Macroxus bicolor*.

Sciurus bicolor, Sparrm.; Horsf. Java, t.; Kuhl.

Sc. javensis, Schreb. t. 216; Shaw.

Sc. macrouroides, Hodgson.

Sc. giganteus, M'Clelland.

?*Sc. abessinicus*, Gmelin.

Black; belly yellow or white; legs black, front of legs whitish. Fur harsh.

Var. *a*. Pale; belly white.

Sc. albiceps, Geoff., Desm.

Sc. Leschenaultii, Desm.

Sc. Desmarestii, Fischer.

Sc. hypoleucus, Horsf.

Sc. humeralis, Coulson.

?*Sc. affinis*, Raffles.

Sc. ochraceus, Temm.

Var. *b*. Fur white; belly pale yellow.

Sc. aureiventer, I. Geoff. Mag. Zool. 1832, t. 5; Gervais, Mag. Zool. 1842, t. 4. f. 1-4.

Hab. India, Nepal (Hodgson): B.M. Java, Sumatra: B.M. Malay peninsula: B.M.

Fur rather harsh; hairs generally of one colour, of the nape and tail sometimes pale-tipped. Black; chin, under surface and inside of limbs yellow or white, varying from black to blackish brown or grey brown and whitish grey. The legs and feet in the black specimens are black, with more or less of white hairs on their front. The head of one dark specimen is whitish.

3. *Macroxus ephippium*.

Sciurus ephippium, S. Müller, Verh. t.

Fur rather short, soft, very variable in colour, from black minutely grizzled to pale reddish brown; the throat, cheeks, and feet red or yellow.

Hab. Borneo: B.M. Celebes (Verreaux): B.M.

II. *Medium size.* Back with three black longitudinal streaks; fur grizzled olive and yellow; chin and beneath yellowish; tail as long as the body. Laria.

4. *Macroxus insignis*.

Sciurus insignis, Horsf. Z. Java, t.; Gervais, Mag. Zool. 1842, t. 32. f. 5 (skull).

Sc. trivirgatus, Franks.

Sides reddish; tail dark, whitish-washed; hairs of three colours—yellow, black, and grey at the tip.

Hab. Sumatra: B.M. Java.

III. *Medium size.* Lower part of the sides of the body with a black

longitudinal stripe; tail elongate, end black; fur grizzled; chin and beneath red.

5. *Macroxus Phayrei*.

Sciurus Phayrei, Blyth, J. A. S. B. 1858, p. 476; Peters, P. Z. S. 1866, p. 429.

Fur olive, minutely and closely punctulated with yellow; chin and beneath red or reddish yellow, the two colours separated by a black lateral streak; tail annulated, with a black tip; feet white or yellow.

Var. Shoulders and fore legs darker.

Hab. Malabar (Blyth, type in B.M.). India. Borneo.

IV. *Medium size. Sides of the body with a pale or white longitudinal stripe.*

- a. *The lateral stripe broad, produced over the shoulders and thighs; fur black or blackish, minutely punctulated; tail black, rather longer than body and head; chin, inside of limbs, and beneath dark red bay. Callosciurus.*

6. *Macroxus Rafflesii*.

Sciurus Rafflesii, Vigors & Horsfield, Zool. Journ. t.

Sc. Prevostii, Lesson (tail discoloured), Schlegel, Nederl. Tijdsch. i. t. 1. f. 1.

Black; beneath red bay; cheeks, shoulders, sides, and fringe of the thighs white.

Hab. Malay Islands. B.M., type.

Var. Bangkanus. Cheeks and shoulders iron-grey.

Sc. Prevostii Bangkanus, Schlegel, l. c. t. 1. f. 2.

Hab. Malay Islands. B.M.

See also *Sc. borneonensis*, Schlegel, l. c. t. 1. f. 3. Like the former, but the cheeks black, sides of the body and outside of the thighs dark iron-grey. Borneo. Mus. Leyden.

7. *Macroxus sarawakensis*.

Black; lower part of cheek, sides of neck, shoulders, fore and hind legs bright rufous, like the under parts of the body; narrow lateral streak and outer side of thighs yellowish white; black on back narrow between the shoulders and haunches; tail black, slightly greyish-washed.

Hab. Sarawak (Wallace). B.M.

8. *Macroxus rufogularis*.

Sciurus rufogularis, Gray, Ann. & Mag. Nat. Hist. 1842, x. 363.

Lateral streak and thighs white; tail black; throat, shoulders, and feet red; face black.

Hab. China. Type in B.M.

Var. *redimitus*.

Sc. redimitus, Boon Mesch.?, Blyth.

Shoulders red; outer side of thighs iron-grey; tail white-washed.

Hab. Borneo.

- b. *The pale lateral streak on side of body with a black streak beneath it; fur black, blackish, or olive; beneath red; tail as long as body and head.*

9. *Macroxus rufoniger*.

Sciurus rufoniger, Gray, Ann. & Mag. Nat. Hist. 1842.

Cheeks, shoulders, legs, feet, and tail black; beneath red; lateral streak narrow, interrupted; thighs grey, mottled externally.

Hab. ——. B.M.

10. *Macroxus atrocapillus*.

Sciurus atrocapilla, Schlegel, l. c. t. 2. f. 1.

Sc. Schwaneri, B.M.

Back iron-grey, minutely punctulated with white; crown of head, lower lateral streak, feet, and tail black; throat, chest, belly, and inner side of limbs red; upper lateral line white, well marked.

Hab. Borneo. B.M.

See also *Sc. Schlegelii* (with cheeks red), *Sc. erythrogeus*, Schlegel, l. c. t. 2. f. 3 (1863), not Waterhouse.

11. *Macroxus vittatus*.

Sciurus vittatus, Raffles.

Sc. bivittatus, Desm., Horsf. Z. J. t.

Macroxus toupai, Lesson.

Sc. pygerythrus, I. Geoff. Voy. Belanger.

Sc. flavimanus, I. Geoff. Mag. Zool. 1832.

Macroxus bivittatus, F. Cuv. D. M.

Fur olive, black-and-yellow-punctulated; sides with a pale-yellow and black lateral streak; chest and beneath red.

Hab. Ceylon: B.M. Java: B.M. Cochin China: B.M. Malacca: B.M.

12. *Macroxus nigrovittatus*.

Sciurus nigrovittatus, Horsf. Z. Java.

Sc. griseiventer, I. Geoff. Mag. Zool. 1832; Coulson, Mém. Neufch. i. t. 10.

Fur olive, minutely black-and-yellow-punctulated; sides with a linear pale and a broad black streak beneath; chin and underside dark black grey; sides of face and throat and front of shoulders rufous; tail black, obscurely ringed, with a black tip.

Hab. Malacca: B.M. Java: B.M.

- c. The pale lateral streak with a streak of the same colour as the back beneath it; fur olive, punctulated; tail elongate, as long as the body and head; hairs pale-ringed. Baginia.

13. *Macroxus platani*.

Sciurus platani, Lingb., Desm., Horsf. Z. J. t.

Sc. notatus, Bodd.

Sc. bilineatus, Geoff.

Macroxus bivittatus, Lesson.

Hab. India? Java, Sumatra. B.M.

- V. Medium size. Back with two white or pale longitudinal streaks on each side; fur grizzled olive and yellow; tail as long as the body, hair yellow, with a black sublinear ring.

14. *Macroxus Berdmorii*.

Sciurus Berdmorii, Blyth, J. A. S. B. 1832, p. 334.

Sc. Mouhotii, Gray, P. Z. S. 1861, p. 137.

Fur grizzled; sides blackish; the lower streak broad, indistinctly marked, upper one narrow, distinct; chin and underside of body white; tail blackish, base of hairs yellow. The first upper grinder nearly as large as the second one.

Hab. Cambogia (Mouhot): B.M. Tenasserim (Blyth): B.M.

- VI. Medium or small size. Back with three (or five) pale longitudinal streaks; fur grizzled, punctulated; tail as long as the body. Palmista.

Palmiste, F. Cuv. Mém. Mus. x. 121, t. 10. f. 2.

Farunculus, Lesson, Ill. Zool.

Tamias, sp., Gervais, Mag. Zool. 1842.

15. *Macroxus palmarum*.

Sciurus palmarum, Horsf. Z. J.; Waterh. P. Z. S. 1834, p. 118.

Palmiste, Buff. H. N. x. t. 26.

Sides and beneath whitish grey; back blackish olive, minutely punctulated, with three elongated, distinct, pale longitudinal streaks, the side ones wider in the centre, central one linear elongate.

Hab. India: B.M. Ceylon (Kelaart): B.M.

Var. *a. Kelaartii*. Fur uniform, shining; the stripe and under-surface in the adult male are reddish white.

"*S. Kelaartii*, Layard, Ceylon" (Kelaart, in B.M.).

16. *Macroxus penicillatus*.

Sciurus penicillatus, Leach, Zool. Misc. vi. t. 1.

Sc. tristriatus, Waterh. P. Z. S.; Mag. N. H. 1837, p. 496; 1839, p. 114.

Sc. trilineatus, Kelaart, P. Z. S. 1850, p. 157.

Sc. palmarum, Elliot, Madras Journ. 1839, p. 218.

Sc. Brodiei, Layard, Ann. & Mag. N. H. 1852, ix. 335. "Blyth,"

Kelaart, B.M.

Back and sides dark olive, minutely punctulated; chin, chest,

and belly white; head reddish-washed; middle of the back often black, with three narrow linear pale stripes; lateral stripes widest, linear. Larger and darker, with narrower stripes than the former.

Hab. Madras (Leach & Elliot, type in B.M.). India, Ceylon (Lord Walden, Kelaart).

17. *Macroxus Layardii*.

Sciurus Layardii, Kelaart, in B.M.

Fur blackish, very minutely punctulated with white; middle of the back black, with three longitudinal linear streaks; the vertebral one the widest, orange-red; the side ones very narrow, linear, white; chin, chest, and underside red; tail black, obscurely annulated with white, and with a black tip.

Hab. Ceylon (Lord Walden). B.M.

Sent from Ceylon as *Sc. Barleei*; but the lateral streak is not continued under the eyes.

18. *Macroxus sublineatus*.

Sciurus sublineatus, Waterh. P. Z. S. 1838, p. 19.

Sc. Delessertii, Gervais, Mag. Zool. 1842, t. i. f. 1-3 (t. 2. f. 1, 4, skull).

Dark olive, very minutely punctulated; back blackish, with three indistinct narrow, linear, white streaks; chin and beneath reddish grey; tail blackish, slightly yellow-varied.

Hab. India, Nilgherries. Ceylon (Lord Walden). Waterhouse and Delessert's type in B.M.

VII. *Medium size or small. Back grizzled, without any dorsal or lateral longitudinal stripes.*

a. *Chest and belly grey or white.* Nos. 19-24.

b. *Chest grey; belly red.* Nos. 25, 26.

c. *Chest and belly dark red brown.*

Tail black (rarely red). Nos. 27-30.

Tail indistinctly ringed, with black tip. No. 31.

Tail dark grizzled, end white. No. 32.

d. *Chest and belly reddish yellow.*

Tail not annulated, end black. No. 33.

Tail blackish, punctulated, whitish-washed. No. 34.

Tail reddish, short. No. 35.

c. *Fur above and below red brown.* Nos. 36, 37.

f. *Fur above and below white.* No. 38.

a. *Chest and belly grey or white; fur grey, punctulated; tail as long as body and head, annulated. Middle size or small.*

19. *Macroxus caniceps*.

Sc. caniceps, Gray, Ann. & Mag. N. II. 1842, p. 212.

Sc. chrysonotus, Blyth, J. A. S. B. 1847, p. 873, 1855, p. 474; Peters, P. Z. S. 1866, p. 429.

Fur olive-grey, very minutely punctulated; back varied with red; inner side of limbs, nose, throat, and beneath pale, nearly uniform whitish grey; feet pale grey; tail as long as the body and head, grey-and-black varied, with a black tip; hairs of tail yellowish, with three equal black bands. Middle size.

Hab. Bhotan: B.M. India (Beavan): B.M.

Var. 1. Back and nape yellow brown; loins grey. (*Sc. caniceps*, Gray; type, *S. chrysonotus*, Blyth, J. A. S. B. t. 37. f. 2.)

Var. 2. Back and loins red brown. India (Beavan). B.M.

Var. 3. Fur grey, grizzled with a few roundish, irregularly placed reddish spots on the middle of the back. India (Bevan). B.M.

20. *Macroxus similis*.

Sciurus lokrioides (part.), Hodgson's Collection.

Fur blackish grey, very closely and minutely punctulated; outer side of thighs reddish-washed; chin, chest, belly, and inner side of limbs greyish white; the front edge of the thighs pale rufous; tail blackish, indistinctly black-ringed, end black; hairs yellow, with two black rings and a long black tip.

Hab. Nepal (Hodgson). B.M.

Very like *Sciurus lokrioides*, but darker, and the front of the thighs pale rufous, their outer side washed with rufous, and the hair on the hinder part of the belly sometimes also has a rufous tinge, and the ears are covered with short hairs.

21. *Macroxus philippinensis*.

Sciurus philippinensis, Waterhouse, Proc. Zool. Soc. 1839, p. 117.

Fur blackish brown, minutely punctulated with yellow; hair elongate; chin, chest, underside of body, and inner side of limbs white; tail blackish, slightly yellow-varied, end black; hairs with two black and four yellow bands.

Hab. Philippine Islands (Cuming; Waterhouse, type, from spirit, bad state). B.M.

22. *Macroxus tenuis*.

Sciurus tenuis, Horsf. Zool. Java, t.

Fur olive, very minutely black-and-yellow punctulated; chin, inner side of legs, and beneath white or greyish; tail black, yellow-varied, black at the tip; hairs of tail yellow, with an indistinct subbasal and very broad subapical black band. Small size.

Hab. Java (Horsfield): B.M., type. Sarawak (Wallace): B.M. Singapore: B.M.

23. *Macroxus chinensis*.

Sciurus chinensis, Gray, L. M. B. M. 144.

Fur dark olive, minutely punctulated with yellow; chin, throat, belly, and inner side of limbs greyish white; tail elongate, black, with long white tips to the hairs; tip blackish; hairs pale brown at the lower half, with a broad black band and a grey tip.

Hab. China (John Reeves). B.M., type.

Var. Head and shoulders paler yellow; tail dull brown, with grey tips to the hairs. China. B.M.

See also *Sciurus exilis*, S. Müller, Verh. t. 15. f. 4, 5, 6. Sumatra, Borneo.

24. *Macroxus inornatus*.

Fur olive-grey, very closely and minutely punctulated with reddish yellow; throat, inner side of limbs, and beneath pale bluish grey, washed with whitish; feet like back; tail longer than the body and head, coloured like the back, with elongated white-tipped black hairs at the tip; hairs of the tail yellow, with three black bands. Middle size.

Hab. Loo Mountains (Mouhot). B.M.

b. *Chest grey, punctulated like the back; belly reddish yellow; tail indistinctly white-ringed.*

25. *Macroxus griseopectus*.

Sciurus griseopectus, Blyth, J. A. S. B. xxvi. 873, t. 36.

Sc. Fortuni, Parzudaki, MS.

Fur dark olive grey, closely and minutely yellow-punctulated; throat and chest grey, like back, but paler; belly, inner side of limbs, and front of thighs pale red brown; face black; tail like back, obscurely white-ringed, end black; hairs pale, with black rings and a grey tip.

Hab. China (Cuming). Type in B.M.

26. *Macroxus leucopus*.

Fur olive grey, minutely punctulated with yellow; lower side of neck like back; hinder part of throat and belly, front of thighs and hind legs reddish grey; feet white; tail elongate, coloured like the back, grey, and black-ringed at the tip; hairs grey, with several subequal broad black rings. Middle size.

Hab. Cambogia (Mouhot). B.M., male adult.

See also *Sciurus persicus*, Gmelin, Reise, iii. 379, t. 45. *Sc. vulgaris persicus*, Erxl., Gilan, in Persia. ? *Sc. anomalus*, Göl-denst. in Schreb. Säugeth. 781, t. 215 c. *Sc. caucasicus*, Schm. *Sc. erythraeus*, Penn., Georgia (not Kuhl). *Hab.* Caucasus.

c. Chest and belly dark red brown. Middle-size Squirrels.

† Tail black, rarely red.

27. *Macroxus Pluto*.

Fur, feet, and tail deep black; chest, belly, and a narrow well-defined line down the inner side of the legs bright red bay.

Hab. Borneo, Sarawak. B.M.

See *S. erythromelas*, Schlegel, l. c. t. 2. f. 2, but with the edges of the fore legs and the hind feet red; and *S. piceus*, Peters, P. Z. S. 1866, p. 429.

28. *Macroxus rufogaster*.

Sciurus rufogaster, Gray, Mag. Nat. Hist. 1842.

Fur minutely punctulated; back yellow-washed; head, shoulders, and thighs iron-grey (grizzled).

Hab. Malacca. B.M., type.

Var. *Borneensis*.

S. hippuris, I. Geoff. Mag. Zool. t.

Nape, back, rump, and hinder edge of fore legs bright red chestnut, like underside.

Hab. Borneo (Blyth). B.M.

29. *Macroxus punctatissimus*.

Fur soft, black, very minutely and closely punctulated with grey; tail and feet black; throat, chest, belly, and inner side of limbs bright red chestnut.

Hab. India. B.M.

30. *Macroxus erythrogaster*.

Sciurus erythrogaster, Blyth, J. A. S. B. xii. 972, xxiv. 473.

Sc. erythræus, Gray, List M. B. M.; Swinhoe, P. Z. S. 1862, p. 357 (not Pallas).

Fur dark olive, minutely punctulated with yellow; back yellowish-washed; throat, chest, belly, and inner side of limbs red chestnut; tail like back; hairs indistinctly pale-ringed.

Hab. Bhotan. B.M., type.

Var. 1. Tail yellow-washed. Formosa (Swinhoe, type). B.M.

Var. 2. Tail, hinder half, red bay, like belly. Assam. B.M.

See also *Sciurus rubriventer*, Müller, Verh. 10.

†† Tail dark, indistinctly white-ringed; end blackish.

31. *Macroxus castaneiventris*.

Sciurus castaneiventris, Gray, Ann. & Mag. Nat. Hist. 1842.

Fur dark olive grey, minutely punctulated; chest, throat,

and belly red-brown ; tail broad, coloured like back, indistinctly white-ringed, end black ; hairs black, with one or two narrow yellow basal rings and grey tips.

Hab. China (Reeves). B.M.

††† Tail dark-grizzled ; end white.

32. *Macroxus atrodorsalis*.

Sciurus atrodorsalis, Gray, Ann. & Mag. N. H. 1842, p. 213 ; Blyth, J. A. S. B. t. 37. f. 2 ; Peters, P. Z. S. 1866, p. 428.

Sc. hyperythrus, Blyth.

Fur grey, minutely punctulated ; back with a large black patch ; tail coloured like back at the base, hinder half whitish, with black rings ; hairs black, with long grey tips ; face reddish ; throat, chest, belly, and inner side of limbs dark chestnut-red.

Var. Throat more or less grey. India, Benares. B.M.

Hab. India (Blyth). Type in B.M.

d. Chest and belly reddish yellow.

* Tail elongate, as long as the body and head, with numerous narrow black rings and a black tip.

33. *Macroxus Blanfordii*.

Sciurus Blanfordii, Blyth, J. A. S. B. 1862, p. 333.

Fur olive grey, punctulated with black and grey ; throat, inner side of limbs, and feet rufous ; tail with numerous narrow black rings and a well-marked black tip.

Hab. India, Pegu and Upper Burmah (Blanford, Blyth). Types in B.M.

** Tail as long as the body, varied, whitish-washed ; end blackish.

34. *Macroxus lokriah*.

Sciurus lokriah, Hodgson, J. A. S. B. 1836, p. 223 ; Horsf. P. Z. S. 1841.

Sc. subflaviventer, M'Clelland, MS. ; Gray, List Mam. B. M. 144 (1842).

Sc. anomalus, Kuhl, Beitr. 69 ? not Gldenst.

Fur dark olive, grizzled, closely and minutely yellow-punctulated ; chin, throat, middle of chest, and abdomen pale red yellow ; tail black, washed with whitish, and with a bluish tip ; hairs yellow, with an evident lower and a broader subapical band and a grey tip ; the underside of the tail with an orange central streak from the orange base of the hairs, and a couple of bluish marginal bands when expanded.

The extent of the red beneath varies ; in some it occupies the whole under surface, in others only the centre of the chest and belly.

Hab. India, Nepal (Hodgson). Type in B.M.

See *Sciurus pygerythrus*, I. Geoff. Mag. Zool. 1832, with underside of body and vent and the base of the tail red. It may be the same as the former, if the second account of the outer side of the limbs is a slip of the pen for the inner side.

*** Tail short, only as long as the body, reddish.

35. *Macroxus syriacus*.

Sciurus syriacus, Ehrenb. & Hemp. S. P. t. 8; Tristram, P. Z. S.
Sc. russata, Wagner, *vide* Verreaux: Schreb. S. iii. 155.

Fur pale iron-grey (black, very closely varied with white); sides of the head and neck, the shoulders, fore legs, sides of the body, front edge of the thighs, and the fore feet red; chin, throat, chest, belly, and inner side of the limbs pale reddish yellow; tail rufous, slightly grey-varied, with a greyish edge; hairs rufous, with a more or less wide subterminal black band, and grey tips.

Hab. Syria, Lebanon, under the cedars (Tristram): B.M.
Brussa (Verreaux): B.M.

Var. *pallesens*. Paler iron-grey; sides of head, shoulders, fore legs, and the fore feet pale yellowish; chin and underside of body and inner side of limbs white.

Sciurus syriacus, Verreaux.

Hab. Asiatic Turkey ("Asie Turque," Verreaux).

This animal, according to Ehrenberg and Hemprich, changes its colour according to the season, being ashy in summer and foxy in winter. The animal, by the shortness of its tail and in general appearance, much resembles a *Spermophilus*; but the skull has the broad teeth and the high erect zygomatic arch of the squirrel. The skull is also without the first upper grinder. They are tree-squirrels, and abundant in the forests of Brussa and on the cedars of Lebanon.

e. Fur uniform red brown, or red punctulated with black and white. Tail elongate, longer than the body and head, rather slender, red. Middle size. *Erythrosciurus*.

36. *Macroxus ferrugineus*.

Sciurus ferrugineus, F. Cuv. Mam. Lith.; Blyth, 1847, 1862.
Sc. splendidus, Gray, P. Z. S. 1861, p. 137.
Sc. ruberrimus, Blyth, M. Z. Soc.

Fur uniform, red bay, varying from dark chestnut to yellowish, sometimes paler on the sides and beneath.

Hab. Cambogia (Mouhot): B.M. Arakan and Pegu (Blyth).

Var. *Keraudrenii*. Very dark bay; tail-end white.

Sc. Keraudreni, Reyn., Lesson, Cent. Zool. t. 3.

Sc. Kerodreni, Schinz.

37. *Macroxus siamensis*.

Sciurus siamensis, Gray, P. Z. S. 1859, p. 478; 1861, p. 137 (Blyth).

Small. Fur reddish bay, minutely punctulated with black; chest, belly, and beneath uniform red bay; tail elongated, longer than the body and head, slender, tapering, grizzled black and orange, apical half bright red bay.

Hab. Siam (Mouhot). B.M., type.

This may be an undeveloped state of the former.

f. Fur white, uniform above and below; tail slender, elongate.

38. *Macroxus Finlaysonii*.

Sciurus Finlaysonii, Horsf. Zool. Java, t.

Fair Squirrell, Pennant, Syn. 285.

Fur white, whiskers and a few hairs on the tail black.

Hab. Sichung Island (Horsfield): type in B.M. Guzerat (Penn).

4. RHINOSCIURUS, Gray, List Mamm. B. M. 195 (1843).

Head moderately elongate; nose produced, acute. Ears ovate, covered with short close-pressed hairs. Cutting-teeth compressed, smooth in front. Cheek-pouches none. Limbs free. Tail as long as the body, pennate; hair rather long, expanded. Skull, jaws much produced, narrow, compressed, lower cutting-teeth very long.

Rhinosciurus tupaoides, Gray, *l. c.* 195.

Sciurus tupaoides, Blyth, J. A. S. B. 1855, xxiv. 477.

Dark olive-grey, minutely punctulated; tail blackish, punctulated.

Hab. Singapore. Type in B.M.

See also *Rh. laticaudatus* (*Sciurus laticaudatus*, S. Müller, Verh. t. 15. f. 1, 2, 3). Borneo.